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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/838,743	04/19/2001	Gerald Deboy	GR 99 P 2591 P	9326

7590 09/24/2002

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EXAMINER
MONDT, JOHANNES P

ART UNIT	PAPER NUMBER
2826	

DATE MAILED: 09/24/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/838,743	DEBOY ET AL.	
	Examiner	Art Unit	
	Johannes P Mondt	2826	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 September 2002* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 3-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 3-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Response to Amendment

Amendment B filed 9/6/2002 and entered as Paper No. 8 is the basis of the present Office Action. In Amendment B Applicant substantially amended claim 1 in addition to the specification; thereby all outstanding claims 1-11 have been amended. For comments on Remarks, see "Response to Arguments" below. Because of the above-mentioned claim amendments comments to Remarks are restricted to those aspects that are relevant to the present claim set.

Response to Arguments

1. Applicant's arguments filed 9/6/2002 have been fully considered but they are not persuasive. In particular, although an effort has been made to define the quantities in the equations relating charge density and the electric field, the objection cannot be removed. Applicant's restated language in the specification and the text suggest that the charge density (ρ) is to be interpreted as a charge per three-dimensional volume element on the basis of Poisson's equation but yet also has to be interpreted as the kernel of an integral over one coordinate, the z-coordinate, said integral yielding a charge (with value q). Therefore, the reader has to conclude that the specification and the newly amended claim 1 contain a contradiction in that the dimension of ρ is both charge per volume and charge per length. Furthermore, all traverses by Applicant against previous rejections rest on the significance of the inequality involving the contradictory integral appearing in claim 1. Clearly, said contradictions have to be resolved before said traverses can be reconsidered.

Specification

2. The specification is objected to for containing no indication what value should be selected for the charge q_c appearing in claim 1, and hence in all claims either directly or indirectly, through dependence on claim 1, and, furthermore, for containing contradictory information concerning the quantities ρ and q. Assuming ρ to be a quantity of dimension charge density, the specification as amended (a) identifies q with the charge in the semiconductor body while, on the other hand, (b) relating the same charge to a line integral over the same charge density that appears in Poisson's law. This is dimensionally impossible, because according to (a) the dimension of q is that of charge while according to (b) the dimension of q is charge density multiplied by length, in other words: charge per surface area. In conclusion, the disclosure (and claim 1, see below) contains a contradictory statement about essential elements and is objected to for that reason. Similarly contradictory conclusions on the meaning and dimension of the quantity ρ must be drawn from the specification if q is adopted to be of dimension charge from the outset. Contradictory statements should be removed. Appropriate action is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. ***Claims 1 and 3-11*** are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. In particular, the critical charge density is not linked to an electric field applied between said first and second electrode by Poisson's equation, unless a charge distribution is provided as well. Poisson's equation merely connects the charge density to the local surplus of the electrostatic potential. This is not enough information, not for people of ordinary, - nor for those of extra-ordinary skills in the art, to determin q_c. Referring to Applicant's specification, on page 3, in which the relation between critical field and critical charge, here indicated by Q_c, is discussed: the location and distribution of charges determines the electric field distribution, not merely a number of dimension charge. Applicant would need to relate q_c to actual attributes of the semiconductor material, such as the critical electric field at which the semiconductor material undergoes breakdown at physically infinitesimal volume elements, and its electrostatic environment, in order to render the inquality that forms the essence of claim 2 into an operational, well-defined imperative, without which the present claim lacks enablement. With the present definition of the quantity q as given in the specification the set of equations contained in claim 1 are contradictory in that the dimension of the quantity ρ is not the same based on the two individual equations, Poisson's equation and the integral equation: from Poisson's equation said dimension is that of electric field divided by length, or, equivalently charge density; while

from the integral equation the aforementioned dimension is concluded to be charge divided by length.

Consequently, the claim cannot possibly be said to contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

In view of their dependence on claim 1, claims 3-11 are also rejected on the same grounds.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Johannes P Mondt whose telephone number is 703-306-0531. The examiner can normally be reached on 8:00 - 18:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan J Flynn can be reached on 703-308-6601. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

JPM
September 22, 2002

NATHAN J. FLYNN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800